IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (previously presented), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claim 14 in accordance with the following:

1. (previously presented) A method for training a neural network that contains pulsed neurons, comprising:

forming discrimination values dependent on pulses that are formed by the pulsed neurons as well as on a training sequence of input quantities that are supplied to the neural network;

training the neural network for a first time span such that a discrimination value is maximized, as a result whereof a first discrimination value is formed;

after the first discrimination value is formed:

shortening the first time span to a second time span,

forming a second discrimination value for the second time span,

shortening the second time span to a shortened second time span if the second discrimination value is the same as the first discrimination value,

forming a second discrimination value for the shortened second time span,

iteratively continuing to shorten the second time span and form a second discrimination value for each shortened second time span until the second discrimination value is different from the first discrimination value; and

choosing as the trained neural network the neural network of the last iteration wherein the second discrimination value is the same as the first discrimination value.

2. (previously presented) A method according to claim 1, wherein an optimization method that is not gradient based is utilized for the maximization of at least one of the first discrimination value and of the second discrimination value.

3. (previously presented) A method according to claim 2, wherein the optimization method is based on the ALOPEX method.

4. (previously presented) A method according to claim 1, whereby the first discrimination value I(T) satisfies the following rule:

$$I(T) = I\left[s; \left\{ \begin{array}{c} t_1^{(1)},\ldots,t_m^{(1)},\ldots,t_{k_1}^{(1)},t_1^{(2)},\ldots,t_{k_2}^{(2)},\ldots, \\ t_1^{(n)},\ldots,t_m^{(n)},\ldots,t_{k_n}^{(n)},\ldots,t_1^{(N)},\ldots,t_m^{(N)},\ldots,t_{k_N}^{(N)} \end{array} \right\} \right],$$

wherein

s references the input quantities,

$t_m^{(n)}$ references a pulse that is generated by a pulsed neuron n at a time m

within a time span [0, T],

k_n (n = 1, ..., N) references a point in time at which the pulsed neuron n has generated the last pulse within the time span [0, T], and

N references a plurality of pulsed neurons contained in the neural network.

5. (previously presented) A method according to claim 4, wherein the first discrimination value I(T) satisfies the following rule:

$$I(T) = -\int p(out) \cdot \ln(p(out))dt_1^{(1)} \ldots dt_{k_1}^{(1)} \ldots dt_{k_N}^{(N)} + \sum_{j=1}^{S} p_j \int p(out|s^{(j)}) \cdot \ln(p(out|s^{(j)}))dt_1^{(1)} \ldots dt_{k_1}^{(1)} \ldots dt_{k_N}^{(N)}$$

with

$$p(out) = \sum_{j=1}^{S} pjp(out|s^{(j)}),$$

wherein

$s^{(j)}$ references an input quantity that is applied to the neural network at a time j,

p_j references a probability that the input quantity $s^{(j)}$ is applied to the neural network at a pint in time j,

$p(out|s^{(j)})$ references a conditioned probability that a pulse is generated by a pulsed neuron in the neural network under the condition that the input quantity $s^{(j)}$ is applied to the neural network at a point in time j.

6. (previously presented) A method according to claim 1, wherein the training sequence of inputs quantities are is of measured physical signals.

7. (previously presented) A method according to claim 6, wherein the training sequence of input quantities is signals of an electroencephalogram.

8. (previously presented) A method for classification of a sequence of input quantities upon employment of a neural network that contains pulsed neurons and was trained, comprising to the following steps:

forming discrimination values dependent on pulses that are formed by the pulsed neurons as well as on a training sequence of input quantities that are supplied to the neural network;

training the neural network for a first time span such that a discrimination value is maximized, as a result whereof a first discrimination value is formed;

after the first discrimination value is formed:

shortening the first time span to a second time span,

forming a second discrimination value for the second time span,

shortening the second time span to a shortened second time span if the second discrimination value is the same as the first discrimination value,

forming a second discrimination value for the shortened second time span,

iteratively continuing to shorten the second time span and form a second discrimination value for each shortened second time span until the second discrimination value is different from the first discrimination value; and

choosing as the trained neural network the neural network of the last iteration wherein the second discrimination value is the same as the first discrimination value; supplying the sequence of input quantities to the neural network; and

forming a classification signal that indicates what kind of sequence of input quantities the supplied sequence is.

9. (previously presented) A method according to claim 8, wherein the training sequence of input quantities and the sequence of input quantities are measured physical signals.

10. (previously presented) A method according to claim 9, wherein the training sequence of input quantities and the sequence of input quantities are measured signals of an electroencephalogram.

11. (previously presented) A neural network that contains pulsed neurons and has been trained according to the following steps:

discrimination values are formed dependent on pulses that are formed by the pulsed neurons as well as on a training sequence of input quantities that are supplied to the neural

network;

the neural network is trained such that for a first time span a discrimination value is maximized, as a result whereof a first discrimination value is formed;

after the first discrimination value is formed:

the first time span is shortened to a second time span,

a second discrimination value is formed for the second time span,

the second time span is shortened to a shortened second time span if the second discrimination value is the same as the first discrimination value,

a second discrimination value is formed for the shortened second time span,

the second time span is shortened and a second discrimination value is formed for each shortened second time span, iteratively, until the second discrimination value is different from the first discrimination value; and

the trained neural network is chosen to be the neural network of the last iteration when the second discrimination value was the same as the first discrimination value.

12. (previously presented) A neural network according to claim 11, wherein the network is utilized for classification of a physical signal.

13. (previously presented) A neural network according to claim 11, utilized for the classification of an electroencephalogram signal.

14. (currently amended) A system for training a neural network that contains pulsed neurons, comprising:

a processor that is configured such that the following steps implemented:

the neural network is trained such that for a first ~~time span~~time span of data input a discrimination value is maximized, as a result whereof a maximum first discrimination value is formed;

after the first discrimination value is formed:

the first ~~time span~~time span of data input is shortened to a second ~~time span~~time span of data input,

a second discrimination value is formed for the second ~~time span~~time span of data input,

the second ~~time span~~time span of data input is shortened to a shortened second ~~time span~~time span of data input if the second discrimination value is the same as the

first discrimination value,

a second discrimination value is formed for the shortened second ~~time span~~time span of data input, and

the second ~~time span~~time span of data input is shortened and a second discrimination value is formed for each shortened second ~~time span~~time span of data input, iteratively, until the second discrimination value is different from the first discrimination value; and

the trained neural network is chosen to be the neural network of the last iteration when the second discrimination value was the same as the first discrimination value.

15. (previously presented) A system according to claim 14, wherein the network is utilized for the classification of a physical signal.

16. (previously presented) A system according to claim 14, wherein the network is utilized for the classification of a signal of an electroencephalogram.